

**REMARKS**

Claims 1-3, 6-11, 14-27, 30-40, and 49-58 were and remain pending. Claim 9 is amended by this Amendment merely to clarify the claimed subject matter, and the amendment does not alter the scope of the claim.

Applicants thank the Examiners for their time and thoughtful comments in the interview conducted with Applicants' representative, Dr. Jill Jacobson, on March 1, 2007. In the interview, the Examiners and Applicants' representative discussed the references cited in the most recent Office Action and reasons that the references do not render the claimed subject matter obvious.

Applicants note that various arguments and assertions were made in past responses, and that certain calculations that Applicants presented previously were to be clarified. Applicants consequently withdraw the arguments and assertions made in previous Amendments and Responses and provide the following remarks.

Claims 1-3, 6, 7, 9-11, 14, 15, 17-23, 25-27, 30, 31, 33-35, 38, 39, 49-51 and 54-57 were rejected under 35 U.S.C. 103(a) as being unpatentable over Kmecak et al. (EP 0 171 460) in view of Williams (US 4,422,925). In formulating an opinion of unpatentability, the Office measured features depicted in Figure 8 in Kmecak et al. and asserted that the measurements from the figure along with calculations performed by the Office indicate that the cited reference discloses certain features of the claimed subject matter.

Applicants respectfully traverse the rejection. It is well established that one cannot measure features depicted in a figure and assert that the proportions that are based solely on those measurements are accurate. "[P]atent drawings do not define the precise proportions of the elements and may not be relied on to show particular sizes if the specification is completely silent on the issue." *Hockerson-Halberstadt, Inc. v. Avia Group International, Ltd.*, 222 F.3d 951, 55 USPQ2d 1487 (Fed. Cir. 2000). "Absent any written description in the specification of quantitative values, arguments based on measurement of a drawing are of little value." *In re. Wright*, 569 F.2d 1124, 193 U.S.P.Q. 332 (CCPA 1976). To Applicants' knowledge, Kmecak et al.'s specification is completely silent on dimensions or scale that might permit one to measure features in the figures

and draw conclusions on proportions based on those measurements. Likewise, Williams is silent on relevant dimensions that might be useful in construing Figure 8 of Kmecak et al. Consequently, any rejection based on measurements of the figures does not establish sufficient information to assert that the claimed subject matter is obvious.

The Office has also asserted that Williams supplies the necessary information to conclude that the claims are obvious even if the dimensions of Kmecak et al. were not exactly precise. The Office's argument still assumes that some conclusion may be drawn from dimensions of features illustrated in Kmecak et al.'s Figure 8, even if dimensions are not entirely precise. However, as noted above, no conclusions may be drawn on proportions from a figure where the specification is silent on the dimensions. Consequently, even if Williams suggested minor variations from what Kmecak et al. taught, Kmecak et al.'s Fig. 8 teaches nothing about dimensions or proportions to optimize.

As further proof that it is erroneous to measure the dimensions of features of Kmecak et al.'s Fig. 8 and draw conclusions on proportions, Dr. Xu Youhao explains in the Declaration that the ratio of velocity at the outlet of the first reaction zone to the velocity at the inlet of the first reaction zone calculated by using the measurements asserted in the Office Action would be much greater than what a conventional velocity would be. It was conventional wisdom to maintain this velocity ratio less than 3 and "absolutely no more than 10" as especially explained from page 12 of the Declaration through the paragraph numbered "(2)" on page 13 of the Declaration. Using the values asserted by the Office for features shown in Fig. 8 of Kmecak et al., Dr. Youhao calculated that  $u_1/u_0$  (the ratio of velocity at the outlet of the first reaction zone to the velocity at the inlet of the first reaction zone, as illustrated in Figure 3 of the Declaration on page 15) would be on the order of 18.7 (see page 19 for the final calculation; full details of the calculation are found from beneath numbered paragraph "(2)" on page 13 through page 19 of the Declaration). The values asserted by the Office are, according to Dr. Youhao's calculations and statements, clearly incorrect.

Further, the changes in dimensions that the Office asserts are routine optimization from what Miller teaches are far from routine. The changes in dimensions are contrary to what a person of ordinary skill would do, as explained in the attached declaration of Dr. Xu Youhao.

Routine optimization is performed within known parameters, but it is not routine optimization to journey in a wholly different direction from what is known.

Dr. Youhao explains in sections 5 and 8 of the Declaration that conventional wisdom prior to the present invention was that the ratio of diameter of a second reaction zone to diameter of a first reaction zone in a riser reactor should be less than 1.5:1.

If the conventional wisdom is to provide a ratio less than 1.5, a person of ordinary skill will optimize at some value less than 1.5. However, the invention moves in an entirely different direction. The invention provides a riser reactor in which the ratio of diameter of second reaction zone to diameter of first reaction zone is from about 1.5:1 to about 5:1.

It is much more than routine optimization to go the opposite direction of conventional wisdom. It is unobvious to go the opposite direction of conventional wisdom.

For the reasons above, Applicants submit that the rejection of the claims based on Kmecak et al. and Williams should be withdrawn.

Dr. Youhao's Declaration in section 7 of the Declaration (pages 2-10) also points out how well the claimed invention can function. The claimed invention in the instances discussed in the Declaration provided a gasoline enriched in isoparaffin as compared to a conventional apparatus and process. While these results are examples of advantages that the invention may provide, such results should not be ignored when assessing whether the Office's preliminary conclusions of obviousness based on an incorrect process of measuring features in a figure and applying those measurements should be withdrawn.

In view of the discussion above, the cited references do not render the claimed subject matter unpatentable.

Claims 8, 16, 24, 32 and 40 were rejected under 35 U.S.C. 103(a) as being unpatentable over Kmecak et al. (EP 0 171 460) in view of Williams (US 4,422,925), as applied to claims 1, 9, 17, 25 and 33 above, and further in view of Watts (US 2,377,657). Applicants respectfully traverse.

The rejection is based in the incorrect premise that Kmecak et al. and Williams render claims 1, 9, 17, 25, and 33 obvious. As discussed previously, this is not the case, and Watts does not provide information missing from Kmecak et al. in view of Williams.

Claims 52, 53, and 58 were likewise rejected based on the premise that Kmecak et al. in view of Williams rendered claim 1 unpatentable, and Carr et al. provided the subject matter specified in the rejected claims. Carr et al. too fails to provide information missing from Kmecak et al. in view of Williams that would be needed to render claim 1 unpatentable, and thus Kmecak et al. in view of Williams and Carr et al. still fail to disclose subject matter having all of the features specified in Applicants' claims. Claims 52, 53, and 58 are therefore patentable for the same reasons that claim 1 is patentable, that the references fail to disclose Applicants' claimed subject matter.

**CONCLUSION**

In view of the above, each of the presently pending claims in this application is believed to be in immediate condition for allowance. Accordingly, the Examiner is respectfully requested to withdraw the outstanding rejection of the claims and to pass this application to issue. If it is determined that a telephone conference would expedite the prosecution of this application, the Examiner is invited to telephone the undersigned at the number given below.

In the event the U.S. Patent and Trademark office determines that an extension and/or other relief is required, applicant petitions for any required relief including extensions of time and authorizes the Commissioner to charge the cost of such petitions and/or other fees due in connection with the filing of this document to ***Deposit Account No. 03-1952*** referencing docket no. **456962000200**. However, the Commissioner is not authorized to charge the cost of the issue fee to the Deposit Account.

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